

WEST[Help](#)[Logout](#)[Interrupt](#)[Main Menu](#)[Search Form](#)[Posting Counts](#)[Show S Numbers](#)[Edit S Numbers](#)[Preferences](#)[Cases](#)**Search Results -**

Terms	Documents
131 and 134	5

Database:

US Patents Full-Text Database
US Pre-Grant Publication Full-Text Database
JPO Abstracts Database
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Derwent World Patents Index
IBM Technical Disclosure Bulletins

Search:[Refine Search](#)[Recall Text](#)[Clear](#)**Search History****DATE:** **Thursday, June 06, 2002** [Printable Copy](#) [Create Case](#)

Set Name Query
side by side**Hit Count Set Name**
result set*DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=OR*

<u>L35</u>	l31 and l34	5	<u>L35</u>
<u>L34</u>	((((704/\$)!.CCLS.))	12567	<u>L34</u>
<u>L33</u>	((((704/9)!.CCLS.)	543	<u>L33</u>
<u>L32</u>	L31 and syntactic same data	15	<u>L32</u>
<u>L31</u>	L23 and semantic same data	85	<u>L31</u>
<u>L30</u>	L23 and semantic same inform\$	47	<u>L30</u>
<u>L29</u>	L28 and query	34	<u>L29</u>
<u>L28</u>	L27 and pointer	58	<u>L28</u>
<u>L27</u>	L26 and text same objects	64	<u>L27</u>
<u>L26</u>	L25 and relationships	267	<u>L26</u>
<u>L25</u>	L24 and attribute\$	347	<u>L25</u>
<u>L24</u>	L23 and (index or indices)	867	<u>L24</u>
<u>L23</u>	free same format same data or unformat\$ same data	2891	<u>L23</u>
<u>L22</u>	L21 and (syntactic same information or syntactic same data)	3	<u>L22</u>
<u>L21</u>	L20 and query	15	<u>L21</u>
<u>L20</u>	L19 and pointer	17	<u>L20</u>
<u>L19</u>	L18 and text same object	17	<u>L19</u>
<u>L18</u>	L17 and relationships	40	<u>L18</u>
<u>L17</u>	L15 and attribute\$	65	<u>L17</u>
<u>L16</u>	L15 and generate\$ same index	30	<u>L16</u>
<u>L15</u>	free near format near data or unformat\$ near data	226	<u>L15</u>
<u>L14</u>	L13 and (free near format same data or unformat\$ same data)	7	<u>L14</u>
<u>L13</u>	L12 and arbitrar\$ same struct\$ same data	11	<u>L13</u>
<u>L12</u>	L11 and (form\$ or generate\$ or make\$ same index)	167	<u>L12</u>
<u>L11</u>	L10 and semi and structured same data	168	<u>L11</u>
<u>L10</u>	L9 and (index or indices)	7298	<u>L10</u>
<u>L9</u>	(directory service and semantic)	33621	<u>L9</u>
<u>L8</u>	((((707/\$)!.CCLS.))	14436	<u>L8</u>
<u>L7</u>	((((707/541)!.CCLS.))	81	<u>L7</u>
<u>L6</u>	((((707/531)!.CCLS.))	695	<u>L6</u>
<u>L5</u>	((((707/102)!.CCLS.))	1195	<u>L5</u>
<u>L4</u>	((((707/4)!.CCLS.))	1018	<u>L4</u>
<u>L3</u>	((((707/1)!.CCLS.))	1527	<u>L3</u>
<u>L2</u>	((((707/101)!.CCLS.))	859	<u>L2</u>
<u>L1</u>	((707/9)!.CCLS.)	538	<u>L1</u>

END OF SEARCH HISTORY

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Print

L32: Entry 10 of 15

File: USPT

Oct 23, 1990

US-PAT-NO: 4965763

DOCUMENT-IDENTIFIER: US 4965763 A

TITLE: Computer method for automatic extraction of commonly specified information from business correspondence

DATE-ISSUED: October 23, 1990

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Zamora; Elena M.	Chevy Chase	MD		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
International Business Machines Corporation	Armonk	NY			02

APPL-NO: 7/ 308955 [PALM]

DATE FILED: February 6, 1989

PARENT-CASE:

This is a continuation of U.S. patent application Ser. No. 021,078, filed Mar. 3, 1987, now abandoned.

INT-CL: [5] G06F 15/40

US-CL-ISSUED: 364/900; 364/918, 364/963, 364/963.1, 364/419

US-CL-CURRENT: 704/1

FIELD-OF-SEARCH: 364/2MSFile, 364/9MSFile, 364/419

PRIOR-ART-DISCLOSED:

U.S. PATENT DOCUMENTS

Search Selected

Search ALL

	PAT-NO	ISSUE-DATE	PATENTEE-NAME	US-CL
<input type="checkbox"/>	<u>4358824</u>	November 1982	Glickman et al.	
<input type="checkbox"/>	<u>4384329</u>	May 1983	Rosenbaum et al.	364/300
<input type="checkbox"/>	<u>4417321</u>	November 1983	Chang et al.	
<input type="checkbox"/>	<u>4506326</u>	March 1985	Shaw et al.	364/900
<input type="checkbox"/>	<u>4773009</u>	September 1988	Kucera et al.	364/200

OTHER PUBLICATIONS

G. E. Heidorn, et al., "The Epistle Text-Critiquing System," IBM Systems Journal, vol. 21, No. 3, pp. 305-236 (1982).

H. Tennant, et al., "Menu-Based Natural Language Understanding," Proc. 21st Ann. Mtg. Assoc. for Computational Linguistics, pp. 151-158, Jun. 1983.

M. S. Palmer, et al., "Recovering Implicit Information," Proc. of 24th Annual Meeting of the Assoc. for Computational Linguistics, pp. 10-19, Jun. 1986.

E. M. Zamora, et al., "Extraction of Chemical Reaction Information from Primary Journal Text Using Computational Linguistics Techniques, . . . " J. Chem. Inf. Comput. Sci., 24, pp. 176-181, 1984.

E. M. Zamora, et al., "Extraction of Chemical Reaction Information" from Primary Journal Text Using Computation Linguistics Techniques, J. Chem. Inf. Comput. Sci., 24, pp. 181-188, (1984).

ART-UNIT: 237

PRIMARY-EXAMINER: Chan; Eddie P.

ATTY-AGENT-FIRM: Hoel; John E.

ABSTRACT:

A Parametric Information Extraction (PIE) system has been developed to identify automatically commonly specified information such as author, date, recipient, address, subject statement, etc. from documents in free format. The program-generated data can be used directly or can be supplemented manually to provide automatic indexing or indexing aid, respectively.

2 Claims, 18 Drawing figures

WEST**End of Result Set**

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L35: Entry 5 of 5

File: USPT

Apr 3, 1990

US-PAT-NO: 4914590

DOCUMENT-IDENTIFIER: US 4914590 A

TITLE: Natural language understanding system

DATE-ISSUED: April 3, 1990

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Loatman; Robert B.	Vienna	VA		
Post; Stephen D.	McLean	VA		
Yang; Chih-King	Rockville	MD		
Hermansen; John C.	Catharpin	VA		

ASSIGNEE-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY	TYPE CODE
Emhart Industries, Inc.	Indianapolis	IN			02

APPL-NO: 7/ 195237 [PALM]

DATE FILED: May 18, 1988

INT-CL: [4] G06F 15/21, G06F 15/18, G06K 9/62

US-CL-ISSUED: 364/419; 364/200, 364/274.8

US-CL-CURRENT: 704/8

FIELD-OF-SEARCH: 364/200, 364/900, 364/274.8, 364/419, 364/917.92

PRIOR-ART-DISCLOSED:

OTHER PUBLICATIONS

Loatman, R. B. & McCown, M. G., Information Extraction from Natural Language Messages, Reprint from Proceedings of ESIG--Third Annual Expert Systems in Government Conference, Oct. 19-23, 1987.

Loatman, R. B., A Hybrid Architecture for Natural Language Understanding, Reprint from Proceedings of SPIE--International Society of Optical Engineering, May 18-20, 1987.

R. B. Loatman article, Natural Language Text Understanding, at pp. 2-5 of Jul. 1986, Technology Newsletter (Assignee Internal Publication).

Undated Brochure of Assignee, "Innovative Solution for AMHS", (author unknown).

M. Bates, 1987, "The Theory & Practice of Augmented Transition Network Grammars", in L. Bolc (ed.) Natural Language Communication with Computers, New York, Springer.

Winograd, T., 1983, Language as a Cognitive Process, vol. 1: Syntax, Reading, Mass: Addison-Wesley, (Chapter 5, Appendix D), 195-271, 583-599.

Quirk, R., Greenbaum, S., Leech, G., & Svartvik, J., 1985, A Comprehensive Grammar of the English Language, New York: Seminar Press (excerpts from Chapter 10, Appendix I).

Sager, N., 1981, Natural Language Information Processing: A Computer Grammar of English and Its Applications, Reading, Mass.: Addison-Wesley (excerpts from Appendix I).

Wilks, V., Haung, X., & Fass, D., 1985, "Syntax, Preference, and Right Attachment", Proceedings of the Ninth IJCAI.

Loatman, R. B., 1988, "Natural Language Text Understanding", Article to be published in assignee Newsletter, (cf. reference AT).

Dept. of Navy, NOSC, May 21, 1987, Memo Concerning Conference Later Held (at which various NLU Systems were eventually demonstrated).

Schank, R., 1985, Conceptual Information Processing, New York: North-Holland, (excerpts from Chapter 3).

Cook, W., 1979, Case Grammar: Development of the Matrix Model, Washington, D.C.:

Georgetown University Press, (excerpts).

Laffal, J., 1973, A Concept Dictionary of English, Essex, Conn.: Gallery Press, (excerpts).

Marcus, M., 1980, Theory of Syntactic Recognition for Natural Language, Cambridge, Mass.: MIT Press, (excerpts).

ART-UNIT: 236

PRIMARY-EXAMINER: Jablon; Clark A.

ATTY-AGENT-FIRM: Forest; Carl A.

ABSTRACT:

A hybrid natural language understanding (NLU) system which is particularly designed for processing natural language text. Primary functional components of the NLU system include a preprocessor; a word look-up and morphology module which communicates with a lexicon and a learning module; a syntactic parser which interfaces with an augmented transition network (ATN) grammar; a case frame applier, which converts the syntactic structure into canonical, semantic "case frames"; and a discourse analysis component which integrates explicit and implied information in the text into a conceptual structure which represents its meaning. This structure may be passed on to a knowledge based system, data base, to interested analysts or decision makers, etc. Significant feedback points are provided, e.g., the case frame applier may notify the syntactic parser of a semantically incorrect parse, or the syntactic parser may seek a semantic judgment based on a fragmentary parse. This system incorporates a novel semantic analysis approach based largely on case grammar.

65 Claims, 57 Drawing figures

WEST**End of Result Set**

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Print

L35: Entry 5 of 5

File: USPT

Apr 3, 1990

DOCUMENT-IDENTIFIER: US 4914590 A

TITLE: Natural language understanding system

Abstract Paragraph Left (1):

A hybrid natural language understanding (NLU) system which is particularly designed for processing natural language text. Primary functional components of the NLU system include a preprocessor; a word look-up and morphology module which communicates with a lexicon and a learning module; a syntactic parser which interfaces with an augmented transition network (ATN) grammar; a case frame applier, which converts the syntactic structure into canonical, semantic "case frames"; and a discourse analysis component which integrates explicit and implied information in the text into a conceptual structure which represents its meaning. This structure may be passed on to a knowledge based system, data base, to interested analysts or decision makers, etc. Significant feedback points are provided, e.g., the case frame applier may notify the syntactic parser of a semantically incorrect parse, or the syntactic parser may seek a semantic judgment based on a fragmentary parse. This system incorporates a novel semantic analysis approach based largely on case grammar.

Brief Summary Paragraph Right (4):

However, there is another NLU application that is less publicized but much more important. Even if the information in a data base is readily accessible, how accurate and timely is that information. For example, in message processing applications, many messages arrive at an intelligence center in an unformatted, "free text" form (i.e., natural language). No present NLU system can account for all of English, and in order to accomplish any useful work with such a system, it is built with a specific, limited task in mind. The linguistic structures and vocabulary that a system can handle are specifically targeted to an application domain and expected text input format. A special use of language peculiar to a domain is often referred to as a "sublanguage", a term encompassing dialects and jargons. A significant part of an NLU developer's job is to discover the characteristics of a sublanguage and specify them for the requirements of an NLU development system.

Detailed Description Paragraph Right (123):

PAKTUS includes data bases of information about words (lexical information) and concepts (semantic information). This section deals primarily with the lexical component. The conceptual component is mentioned in a few places where it interfaces with the lexical one. It is fully discussed below at Section 5. Section 4.1 defines the current PAKTUS lexical categories and their associated features. The overall structure and operation of the lexicon is explained in section 4.2. Finally, section 4.3 explains how the lexicon is extended.

Detailed Description Paragraph Right (143):

PAKTUS recognizes a prescribed set of "affixes" (prefixes and suffixes) and knows how they ordinarily affect the lexical and semantic content of words to which they are added. It also has rules specifying how they alter the spelling when combined with a root (e.g., when adding -ly to a word ending in "y" first change the "y" to "i" as in happy .fwdarw.happily). A subset of these (-s, -'s, -er -est, -ly, -ed, -ing, and -th, along with their spelling variants) have completely predictable effects when added to certain word classes (e.g., -er always makes an adjective comparative, although it is less certain what it does to a verb) For this subset, PAKTUS derives the information about the inflected form when it is first encountered and keeps it in virtual memory. It does not ask the dictionary officer for confirmation of the derivation since there is no doubt, nor does it write the derived form permanently in the lexicon data base. This saves space with little or no cost in processing time.

Current US Original Classification (1):

704/8

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Search Results - Record(s) 1 through 3 of 3 returned.☐ 1. Document ID: US 20020010714 A1

L22: Entry 1 of 3

File: PGPB

Jan 24, 2002

PGPUB-DOCUMENT-NUMBER: 20020010714
PGPUB-FILING-TYPE: new
DOCUMENT-IDENTIFIER: US 20020010714 A1

TITLE: Method and apparatus for processing free-format data

PUBLICATION-DATE: January 24, 2002

INVENTOR-INFORMATION:

NAME	CITY	STATE	COUNTRY	RULE-47
Hetherington, Greg	Kareela		AU	

US-CL-CURRENT: 707/505; 707/508

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RMIC	Draw Desc	Image
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☐ 2. Document ID: US 6272495 B1

L22: Entry 2 of 3

File: USPT

Aug 7, 2001

US-PAT-NO: 6272495
DOCUMENT-IDENTIFIER: US 6272495 B1

TITLE: Method and apparatus for processing free-format data

DATE-ISSUED: August 7, 2001

INVENTOR-INFORMATION:

NAME	CITY	STATE	ZIP CODE	COUNTRY
Hetherington; Greg	Kareela	New South Wales	2232	AUX

US-CL-CURRENT: 707/101; 707/102, 707/4, 707/531

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	RMIC	Draw Desc	Image
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☐ 3. Document ID: US 2002010714 A1 WO 9848360 A1 AU 9870147 A EP 1078323 A1 US 6272495 B1 CN 1315020 A

L22: Entry 3 of 3

File: DWPI

Jan 24, 2002

DERWENT-ACC-NO: 1998-583882
DERWENT-WEEK: 200210
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TITLE: Free format data processing method e.g. for computer - processing free format data to produce text object associated with free format data with text object has several component nodes containing attribute type identifiers for elements of free format text and other data

INVENTOR: HETHERINGTON, G

PRIORITY-DATA: 1997AU-0000 (April 22, 1997)

PATENT-FAMILY:

PUB-NO	PUB-DATE	LANGUAGE	PAGES	MAIN-IPC
US 2002010714 A1	January 24, 2002		000	G06F007/00
WO 9848360 A1	October 29, 1998	E	095	G06F017/30
AU 9870147 A	November 13, 1998		000	G06F017/30
EP 1078323 A1	February 28, 2001	E	000	G06F017/30
US 6272495 B1	August 7, 2001		000	G06F017/30
CN 1315020 A	September 26, 2001		000	G06F017/30

INT-CL (IPC): G06 F 7/00; G06 F 17/20; G06 F 17/30

Full	Title	Citation	Front	Review	Classification	Date	Reference	Sequences	Attachments	Claims	KWIC	Draw Desc	Clip Img	Image
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Terms	Documents
L21 and (syntactic same information or syntactic same data)	3

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